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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,855	07/14/2003	Dong-Ryeol Lee	1293.1839	3801

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
GOMA, TAWFIK A	
ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/617,855	LEE ET AL.	
	Examiner	Art Unit	
	Tawfik Goma	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6-9,11,12,17-20,22-25 and 28-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6-9,11,12,17-20,22-25 and 28-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the amendment filed on 10/23/2007

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6, 7, 8, 9, 11, 12, 17, 18, 19, 20, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 2001/0043522) in view of Oohchida et al (US 6584060).

Regarding claims 1, 12, and 23, Park discloses an optical pickup of an optical disc for a recording/reproducing apparatus (fig. 2), comprising: a light source emitting a light (11, fig. 2); an objective lens (15, fig. 2) focusing the light emitted from the light source and irradiating the light on the optical disc (D1, D2, fig. 2), a collimating lens (14, fig. 2) to convert the light emitted from the light source into parallel light after passing through the collimating lens and the optical element; and a hologram optical element (12, fig. 2) adjusting a convergence and/or a divergence of the light and proceeding to the objective lens, wherein the hologram optical element focuses the light emitted from the light source (par. 33) and wherein the hologram optical element is adjusted along an optical axis to adjust the convergence and/or divergence of the light emitted from the light source during assembly of the optical pickup (fig. 2 and par. 33).

Park fails to disclose the focal length of the collimating lens. In the same field of endeavor, Oohchida discloses an optical pickup with a collimator lens whose focal length is 10 mm (col. 9 lines 26-35). It would have been obvious to one of ordinary skill in the art to modify the pickup disclosed by Park by providing a collimating lens with a focal length of 10 mm as taught by Oohchida. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide a collimating lens with a focal length of 10 mm in order to increase the optical efficiency of the pickup.

Regarding claims 6, 17 and 27, Park further discloses wherein the optical element (12, fig. 2) is disposed between the light source and the collimating lens (15, fig. 2).

Regarding claims 7, 8, 18, and 19 Park further discloses wherein the optical pickup further comprises a beam shaping device disposed between the collimating lens and the objective lens to shape the light (16, fig. 2).

Regarding claims 9, 11, 20, and 22, Park further discloses wherein the light source comprises a plurality of light sources to emit light having different wavelengths and the optical element adjusts the convergence/divergence of the light emitted from at least one of the plurality of light sources so that the optical pickup is compatible for a plurality of optical recording media having different formats (11a, 11b, fig. 2 and par. 27).

Regarding claim 24, Park further discloses wherein the light source comprises an edge emitting laser or a vertical cavity surface-emitting laser to emit the light having a predetermined wavelength (11a, 11b, fig. 2).

Regarding claim 25, Park further discloses wherein the collimating lens is disposed between the optical path changing device and the objective lens (14, fig. 3), so that the

collimating lens focuses the divergent light emitted from the light source and makes the light into parallel light.

Claims 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 2001/0043522) in view of Oohchida (US 6584060) as applied to claims 1, 6, 7, 8, 9, 11, 12, 17, 18, 19, 20, and 22-25 above and further in view of Kim (US Patent 6337841).

Regarding claim 28, Park in view of Oohchida disclose everything claimed as applied above. Park further discloses wherein the laser source emits a wavelength of 655 nm (par. 27) for a DVD type disc. Park fails to disclose the numerical aperture of the objective lens. In the same field of endeavor, Kim '841 discloses wherein the objective lens has a numerical aperture of 0.6 (col. 5 lines 58-60). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to use a numerical aperture of 0.6 as it was a common numerical aperture of an objective lens used during DVD recording.

Regarding claim 29, Park discloses providing an optical path changing device (13, fig. 13) but fails to disclose providing a collimating lens between the light source and the optical path changing device. In the same field of endeavor, Kim '841 discloses an optical path changing device (231, fig. 11) wherein a beam shaping element and a collimating lens are between the light source and the optical path changing device (223, 225, fig. 11). It would have been obvious to one of ordinary skill in the art to provide a collimating lens between the light source and the optical path changing device. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide a collimating lens between the light source and the optical path changing device in order to have parallel light enter the path changing device.

Regarding claim 30, Kim '841 further discloses wherein the optical path-changing device

comprises a plate beam splitter (231, fig. 11). It would have been obvious to use a plate beam splitter as an alternative to a quad-beam splitter disclosed by Park as it is well known alternative in the art.

Regarding claim 31, Park further discloses a beam shaping element disposed on a path of the light after passing through the collimating lens and the optical element (16, fig. 2).

Regarding claim 32, Park in view of Oohchida fail to disclose wherein a beam shaping element and a collimator lens are disposed between the light source and the plate beam splitter so that the light reflected from the optical disc and passing through the plate beam splitter becomes the parallel light in a beam shaping state. Kim discloses providing a beam shaping element (223, fig. 11) and a collimating lens (225, fig. 11) between a light source and a plate beam splitter (fig. 11). It would have been obvious to provide the beam shaping element and collimating lens between the light source and the beam splitter. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the beam shaping element and the collimator lens prior to the beam splitter in order to make use of stray light that is emitted from the light source, thereby making the optical system more efficient.

Regarding claim 33, Park further discloses a grating splitting the light emitted from the light source into at least three light beams to detect a tracking error signal using a three-beam method (12, fig. 2 and par. 28). The grating of Park also acts as the hologram element as claimed by applicant.

Regarding claim 34, Park and Oohchida fail to disclose wherein the beam shaping device and the collimating lens are disposed between the beam splitter and the objective lens. Kim '841, discloses a beam shaping device (135, fig. 3), and collimating lens (133, fig. 3) disposed

between a beam splitter (113, fig. 3) and an objective lens (137, fig. 3). It would have been obvious to one of ordinary skill in the art to place the beam shaping element and the collimating lens between the beam splitter and the objective lens. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the beam shaping device and the collimating lens between the beam splitter and the objective lens in order to shape and collimate the light that is reflected from the disc increasing the optical efficiency of the pickup since stray light caused by the reflection off of the disc will be shaped and made convergent on the detectors.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 2001/0043522) in view of Oohchida (US 6584060) and Kim (US Patent 6337841) as applied to claims 28-34 above and further in view of Ohnishi et al (US 6507009).

Regarding claim 35, Park further discloses a photo detector (18, fig. 2). Park in view of Oohchida and Kim fail to disclose providing a lens for removing aberration. In the same field of endeavor, Ohnishi discloses providing a lens for removing aberration in front of a photodetector with an inclination opposite that of the plate beam splitter (12, fig. 10). It would have been obvious to one of ordinary skill in the art to provide the lens disclosed by Ohnishi. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the lens disclosed by Ohnishi in order to amend for the coma aberration from a plate beam splitter (see Ohnishi col. 9 lines 46-55).

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 2001/0043522) in view of Oohchida (US 6584060) and Kim (US Patent 6337841) as applied to claims 28-34 above and further in view of Fujita (US 5097462).

Regarding claim 36, Park in view of Oohchida and Kim fail to disclose wherein the optical element and the grating are installed separately. In the same field of endeavor, Fujita discloses providing a grating (142, fig. 9) and a hologram element (140, fig. 9) separately. It would have been obvious to provide both a grating and a hologram element and install them separately as taught by Fujita. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide a grating and a hologram optical element separately in order to adjust the optical properties of each of the elements separately such that the behavior of the optical system is more precise.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 2001/0043522) in view of Oohchida (US 6584060) and Kim (US Patent 6337841) claims 28-34 above and further considered with Tajiri (US 6072607).

Regarding claim 37, Park in view of Oohchida and Kim fail to disclose providing a grating and a hologram element in one united body. Tajiri discloses wherein a grating and a holographic optical element are formed in one united body (7, 60, fig. 16). It would have been obvious to one of ordinary skill in the art to provide both a grating and a hologram optical element that are formed in a united body. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide both elements in order to adjust their optical properties separately, thereby making the system more precise and one would be motivated to make the diffraction grating and the optical element in a united body in order to ensure that no displacement occurs between the grating and the optical element due to disturbances to the pickup.

Response to Arguments

Applicant's arguments filed 10/23/2007 have been fully considered but they are not persuasive. Regarding applicant's arguments that Park fails to disclose focusing the light emitted from the light source because focusing a light is not equivalent to positioning a light is not persuasive. By definition, focusing means to cause to converge on or toward a central point; concentrate or to direct towards a particular point or purpose (American Heritage Dictionary). The element of Park acts to make the light beam incident on a proper location of the photo-detecting element 18. The element achieves this by adjusting the divergence of the split beams (0 order, +/- 1st order) by moving in an optical axis direction such that the beams are converged at the appropriate location on the photo-detecting elements. Put differently, the location of the beams on the photo-detector is a function of the adjusted position of the optical element in the optical axis direction. In order to position the beams on the detecting elements, the position of the grating is adjusted in order to maximize or concentrate the amount of light that is formed on the surface of the detecting elements. Therefore, the disclosure by Park of using a grating to adjust the location of split beams on a photo-detecting element is equivalent to the claimed limitation of focusing the emitted light.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al (US 2002/0136132) discloses a holographic optical element for use with an optical pickup (105, fig. 3). Yoo et al (US 6400666) discloses an optical pickup device which uses an adjustable hologram element (40, fig. 3)

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tawfik Goma
1/16/2008

/William Korzuch/
SPE, Art Unit 2627